Bridge Design Details 7.2 March 2026

Footing Reinforcement

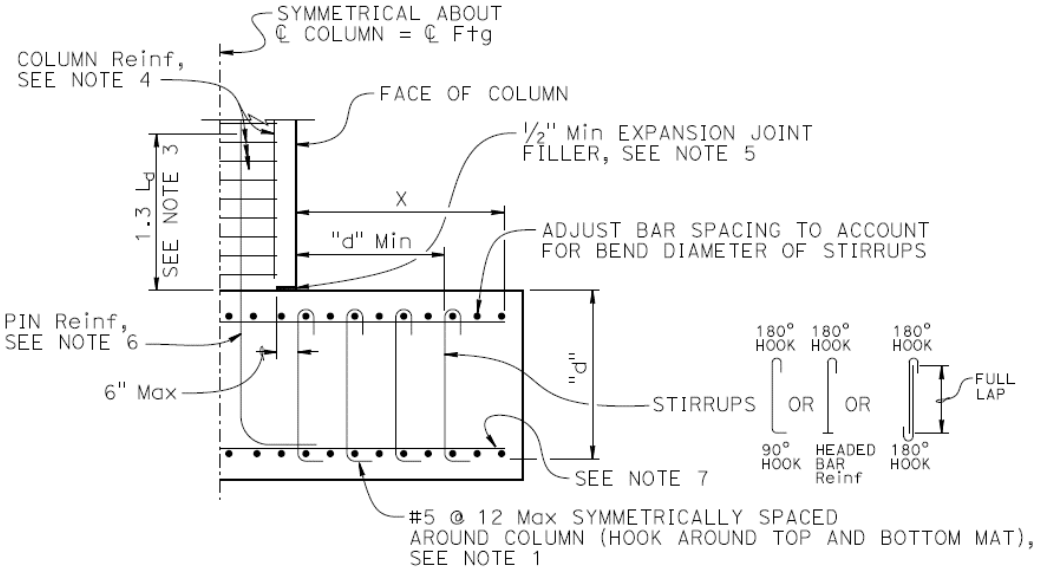

Figure 7.2.1 Footing Reinforcement Pinned Column (see also *Seismic Design Criteria* Figure C6.2.2.5-1)

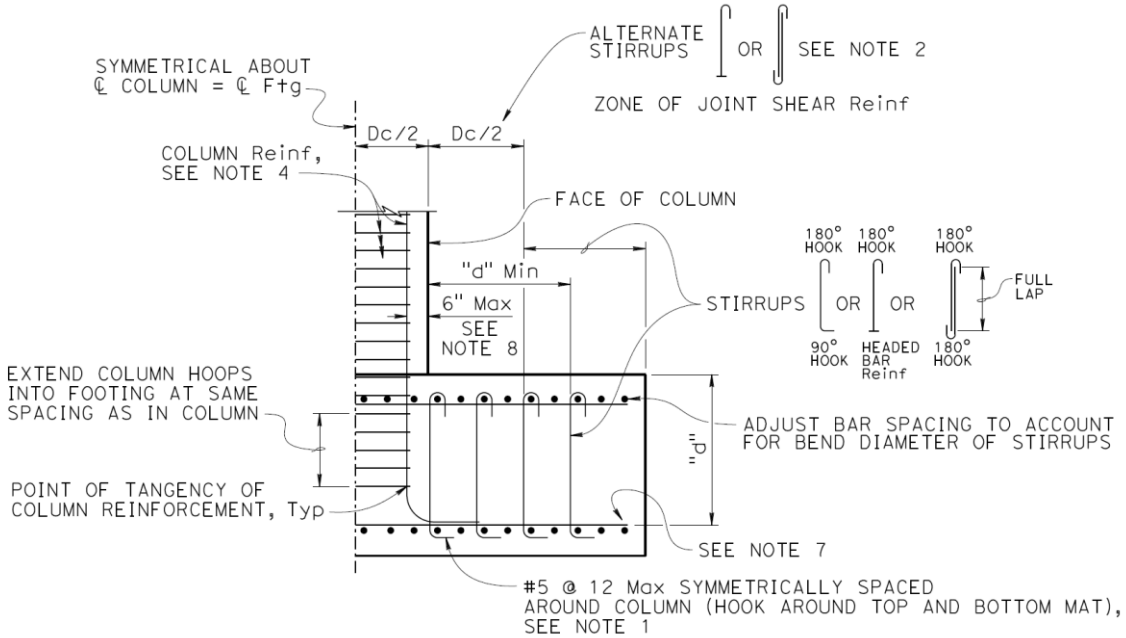

Figure 7.2.2 Footing Reinforcement Fixed Column (see also *Seismic Design Criteria* Figure C6.2.2.5-2)

Notes:

1. The minimum area of footing stirrups is shown, equivalent may be provided.
2. Alternate stirrups shall be used for Joint Shear if principal tension (P_t) > $3.50\sqrt{f'_c}$ (psi).
3. For minimum development length (L_d), see *AASHTO LRFD Bridge Design Specifications:* 5.10.8.2.1a Tension Development Length.
4. All column hoops shall be ultimate butt spliced continuous, see *Seismic Design Criteria 2.1*: 8.2.2 Reinforcement Splices in Seismic Critical Members.
5. The thickness of the expansion joint filler should allow for maximum column rotation and prevent crushing the edge of the column concrete against the footing. Minimum thickness should be ½".
6. When pinned columns are used for oblong columns having overlapping hoops, pin reinforcement must be detailed to clear the hoops. For minimum design requirements for column pin and key, see *Seismic Design Criteria 2.1:* 7.6.4 Column Key Design. Pinned reinforcement should be enclosed with spirals and be stainless steel.
7. Provide 90-degree hooks or headed bar reinforcement at ends of top and bottom mat reinforcement, where L_d > X or as required. End hooks are not typical.
8. When precast construction is used, the 6-inch maximum distance to the first footing stirrup shall be measured to face of corrugated metal pipe.
9. For minimum clearances and pile embedment dimensions, see 6.4 Pile Footings.

Column Pin Reinforcement

Pin dowels and spirals shall be stainless steel.

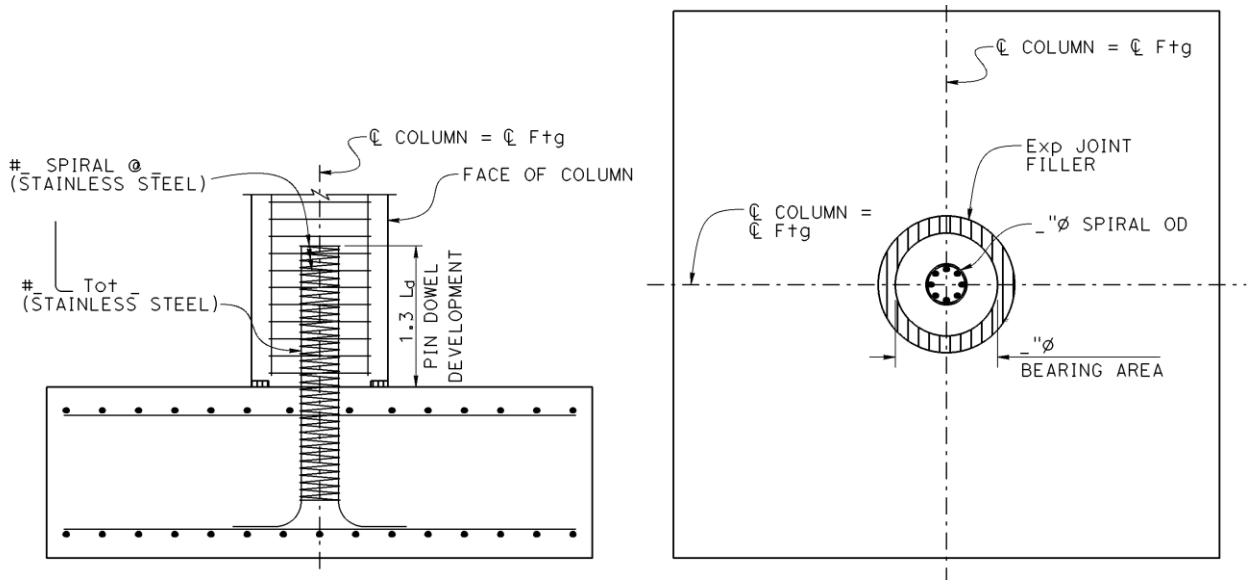

Figure 7.2.3 Column Pin Details